"Investing in Africa's Future"

COLLEGE OF HEALTH, AGRICULTURE & NATURAL SCIENCES

DEPARTMENT OF BIOMEDICAL AND LABORATORY SCIENCES

BACHELOR OF MEDICAL LABORATORY SCIENCES HONOURS

END OF SEMESTER EXAMINATIONS

NSLS407: HEMATOLOGY II

NOVEMBER 2024

LECTURER: PROF. EMMANUEL OBEAGU

DURATION: 3 HOURS

INSTRUCTIONS

1. Write your candidate number on the space provided on top of each page
2. Answer **all** questions in sections A on the question paper.
3. Answer **all** questions in section B on separate answer sheets provided.
4. Answer any **3** questions in section C on separate answer sheets provided
5. Mark allocation for each question is indicated at the end of the question
6. Credit will be given for logical, systematic and neat presentations in sections B and C

SECTION A (MULTIPLE CHOICE): 20 MARKS

Instruction: Answer all questions by encircling the correct response T for TRUE or F for FALSE for each statement in all the questions

1. **What is the primary definition of anemia?**

   A) Increased white blood cells **T or F**

   B) Decreased hemoglobin concentration **T or F**

   C) Increased red blood cells **T or F**

   D) Increased hematocrit **T or F**

   E) Decreased platelets **T or F**

2. **Which of the following is NOT a cause of anemia?**

   A) Blood loss **T or F**

   B) Nutritional deficiency **T or F**

   C) Chronic disease **T or F**

   D) Leukocytosis **T or F**

   E) Bone marrow failure **T or F**

3. **Iron deficiency anemia falls under which classification?**

   A) Macrocytic anemia **T or F**

   B) Microcytic hypochromic anemia **T or F**

   C) Normocytic anemia **T or F**

   D) Hemolytic anemia **T or F**

   E) Aplastic anemia **T or F**

4. **Which type of anemia is associated with a deficiency in vitamin B12?**

A) Iron deficiency anemia **T or F**

B) Macrocytic anemia **T or F**

C) Microcytic anemia **T or F**

D) Normocytic anemia **T or F**

E) Sideroblastic anemia **T or F**

5. **Which laboratory finding is typical of hemolytic anemia?**

A) Low bilirubin levels **T or F**

B) Decreased reticulocyte count **T or F**

C) High lactate dehydrogenase (LDH) levels **T or F**

D) High iron levels **T or F**

E) Decreased red cell fragility **T or F**

6. **Polycythemia refers to an increase in which of the following?**

A) White blood cells **T or F**

B) Red blood cells **T or F**

C) Platelets **T or F**

D) Plasma volume **T or F**

E) Hemoglobin degradation **T or F**

7. **Primary polycythemia is also known as:**

A) Polycythemia anemia **T or F**

B) Polycythemia vera **T or F**

C) Secondary polycythemia **T or F**

D) Anemia of chronic disease **T or F**

E) Idiopathic polycythemia **T or F**

8. **What is the primary cause of secondary polycythemia?**

A) Bone marrow failure **T or F**

B) Hypoxia **T or F**

C) Infection **T or F**

D) Vitamin deficiency **T or F**

E) Excessive bleeding **T or F**

9. **Which of the following laboratory findings is typical of polycythemia vera?**

A) Decreased hemoglobin **T or F**

B) Increased erythropoietin **T or F**

C) Low platelet count **T or F**

D) Elevated hematocrit **T or F**

E) Low white blood cell count **T or F**

10. **Which of these is NOT a common symptom of polycythemia?**

A) Fatigue **T or F**

B) Headaches **T or F**

C) Cyanosis **T or F**

D) Pruritus **T or F**

E) Tinnitus **T or F**

11. **Leucocytosis is defined as:**

A) Low white blood cell count **T or F**

B) High white blood cell count **T or F**

C) Low platelet count **T or F**

D) High red blood cell count **T or F**

E) Decreased neutrophils **T or F**

12. **Which condition is a common cause of non-neoplastic leucocytosis?**

A) Leukemia **T or F**

B) Chronic myeloid leukemia (CML) **T or F**

C) Bacterial infection **T or F**

D) Hemophilia **T or F**

E) Aplastic anemia **T or F**

13. **Chronic Myeloid Leukemia (CML) is characterized by which of the following?**

A) Low platelet count **T or F**

B) Overproduction of neutrophils **T or F**

C) Low red blood cell count **T or F**

D) Hypochromic anemia **T or F**

E) Increased lymphocyte count **T or F**

14. **Which test is used to diagnose neoplastic leucocytosis?**

A) Iron studies **T or F**

B) Platelet count **T or F**

C) Bone marrow biopsy **T or F**

D) Coagulation profile **T or F**

E) Reticulocyte count **T or F**

15. **Neutrophilia is often a response to:**

A) Viral infections **T or F**

B) Bacterial infections **T or F**

C) Fungal infections **T or F**

D) Anemia **T or F**

E) Bone fractures **T or F**

16. **Thrombocytopenia refers to a decrease in:**

A) Red blood cells **T or F**

B) White blood cells **T or F**

C) Platelets **T or F**

D) Hemoglobin **T or F**

E) Plasma **T or F**

17. **Qualitative platelet disorders primarily affect:**

A) Platelet structure **T or F**

B) Platelet count **T or F**

C) Red blood cell function **T or F**

D) White blood cell function **T or F**

E) Erythropoietin levels **T or F**

18. **Thrombocytopenia refers to:**

A) Low red blood cell count **T or F**

B) Low white blood cell count **T or F**

C) Low platelet count **T or F**

D) High platelet count **T or F**

E) High red blood cell count **T or F**

19. **Which condition is a qualitative platelet disorder?**

A) Iron deficiency **T or F**

B) Glanzmann thrombasthenia **T or F**

C) Polycythemia **T or F**

D) Neutrophilia **T or F**

E) Eosinophilia **T or F**

20. **Immune thrombocytopenic purpura (ITP) is characterized by:**

A) Increased red cell mass **T or F**

B) Decreased platelet survival **T or F**

C) High platelet count **T or F**

D) Increased white blood cell count **T or F**

E) Increased hemoglobin **T or F**

SECTION B: 20 MARKS

Instruction: Answer all questions on separate answer sheets provided

1. List the primary causes of anaemia? **5 Marks**
2. How is anaemia classified based on red cell indices? **5 Marks**
3. What are the causes of secondary polycythemia? **5 Marks**
4. Define leucocytosis **5 Marks**

SECTION C: 60 MARKS

Instruction: Answer any 3 questions from this section on separate answer sheets provided

1. Describe how inhibitors affect coagulation in acquired bleeding disorders **20 Marks**
2. Discuss aplastic anemia **20 Marks**
3. Write laboratory diagnosis of sickle cell anemia **20 Marks**
4. How does relative polycythemia differ from absolute polycythemia? **20 Marks**
5. Write laboratory investigations of hemolytic anemia **20 Marks**
6. Discuss the laboratory findings in secondary polycythemia **20 Marks**